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(54) **Methods using nucleic acid hybridization patterns on a matrix of oligonucleotides**

(57) The present invention provides methods and apparatus for sequencing, fingerprinting and mapping biological polymers, particularly polynucleotides. The methods make use of a plurality of positionally distinct sequence specific recognition reagents, such as polynucleotides. The apparatus employs a substrate comprising positionally distinct sequence specific recognition reagents, such as polynucleotides, which are preferably localized at high densities. The methods and apparatus of the present invention can be used for determining the sequence of polynucleotides, mapping polynucleotides, and developing polynucleotide fingerprints. Polynucleotide fingerprints can be used for identifying individuals, tissue samples, pathological conditions, genetic diseases, infectious diseases, and other applications. Polynucleotide fingerprints can also be used for classification of biological samples, including taxonomy, and to characterize their sources. The invention also provides polynucleotide mapping, fingerprinting, and sequencing as valuable laboratory research tools for use in biological investigations.

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EUROPEAN SEARCH REPORT

Application Number
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			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			C12Q
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 29 April 1999	Examiner MOLINA GALAN E.
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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